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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,744	07/05/2001	Mohammed Nafie	TI-31289	2938

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EXAMINER

TRIMMINGS, JOHN P

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/899,744

Applicant(s)

NAFIE ET AL.

Examiner

John P Trimmings

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/05/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 . 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Claims 1-6 are presented for examination.

#### ***Priority***

The examiner acknowledges the priority of the applicants' provisional application number 60/216,293.

#### ***Information Disclosure Statement***

The examiner has considered the IDS form provided with the application.

#### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the step numbers of the boxes as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### ***Specification***

2. The disclosure is objected to because of the following informalities: The last sentence of the specification on page is not a complete sentence. The examiner suggests that the sentence be removed. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by "Throughput of Hybrid ARQ Types for UTRA TDD Mode", P. Slanina et al., EUROCOMM 2000, IEEE/AFCEA, 17 May 2000, pp 11-15. The method of transmitting convolution encoded packets with codes  $g_1, g_2, \dots, g_n$ , with a 1<sup>st</sup> transmission of  $g_1$  by the transmitter, and a 2<sup>nd</sup> transmission of  $g_2$  is fully anticipated by Slanina et al. in Figure 2 of the reference. Slanina describes the "Hybrid ARQ Type III method (I. Introduction) and applies the method to the protocol and method of Figure 2. It is well known in the communications art that "Hybrid ARQ Type III" refers to the encoding of convolution codes, thus the Claim 1 has been fully anticipated by Slanina et al.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Throughput of Hybrid ARQ Types for UTRA TDD Mode", P. Slanina et al., EUROCOMM 2000, IEEE/AFCEA, 17 May 2000, pp 11-15, and in view of "Throughput Performance of Memory ARQ Schemes", Samor Kallel et al., IEEE Transactions on Vehicular Technology, May, 1999, Vol. 48, No. 3, pp 891-899.

As per Claim 2:

The method of transmission, as taught in Claim 1 (paragraph 4 above) is further limited by the applicant in Claim 2 to the encoding of blocks of data and crc check bits.

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Kallel et al. describes the same art, a Type III ARQ, and also further specifies that the blocks be composed of data and check bits (see Kallel et al. page 897, C. Type-III ARQ, paragraph 1). It would have been obvious to anyone with ordinary skill in the art at the time of the invention, that combining Slanina et al. and Kallel et al. would satisfy the requirement of a Type II ARQ protocol by providing a high level of error detection to the data. The motivation in this case is to detect errors using the best technology available, which is check bit (crc) detection.

As per Claim 3:

The method of receiving and decoding the 1<sup>st</sup> packet ( $g_1$ ), and if an error in the 1<sup>st</sup> packet, receiving and decoding the 2<sup>nd</sup> packet ( $g_2$ ), and when there is an error in the 2<sup>nd</sup> decoding, decoding a combination of the two packets, is fully taught by Slanina et al. in Figure 2 of this reference. In addition, in the first paragraph of I. Introduction (Slanina page 11, column 1), the reference discusses the "diversity combining" in this method for the purpose of further correction attempts. However, Slanina et al. does not specify that the block consist of data and crc. But, Kallel et al. describes the same art, a Type III ARQ, and also further specifies that the blocks be composed of data and check bits (see Kallel et al. page 897, C. Type-III ARQ, paragraph 1). It would have been obvious to anyone with ordinary skill in the art at the time of the invention, that combining Slanina et al. and Kallel et al. would satisfy the requirement of a Type II ARQ protocol by providing a high level of error detection to the data. The motivation in this case is to detect errors using the best technology available, which is check bit (crc) detection, and so Claim 3 is fully taught and is rejected.

As per Claim 4:

The method of receiving and decoding the 1<sup>st</sup> packet ( $g_1$ ), and if an error in the 1<sup>st</sup> packet, requesting the transmission of the 2<sup>nd</sup> packet is fully anticipated by Slanina et al. in Figure 2 of this reference, and was rejected in Claim 3 above in further view of data and crc bits. In the diagram of Figure 2 in Slanina et al., it is also taught that an ACKNAK response is sent to the transmitter and in response to the ACKNAK, the transmitter sends out packet 2, and so Claim 4 is fully taught and is rejected.

As per Claim 5:

This Claim, dependent on Claim 3 above, specifies that the decoding of the combination of the 1<sup>st</sup> and 2<sup>nd</sup> packets be done utilizing the Viterbi algorithm. Kallel et al., in an analogous art, teaches also that the Type-II ARQ use Viterbi decoding (reference page 897, paragraph 1). One with ordinary skill in the art at the time of the invention, with the goal of improving error correction chances of success, would add Viterbi decoding to an error correction scheme, therefore the Claim is rejected.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over "Throughput of Hybrid ARQ Types for UTRA TDD Mode", P. Slanina et al., EUROCOMM 2000, IEEE/AFCEA, 17 May 2000, pp 11-15, in view of "Throughput Performance of Memory ARQ Schemes", Samor Kallel et al., IEEE Transactions on Vehicular Technology, May, 1999, Vol. 48, No. 3, pp 891-899, and further in view of "Code Combining - A Maximum-Likelihood Decoding Approach for Combining an Arbitrary Number of Noisy Packets", David Chase, IEEE Transactions on Communications, May, 1985, Vol. COM-33, No. 5, pp 385-393. Claim 6 is dependent on

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Claim 3 above and, and is further limited by combinational Viterbi decoding based on a weighting process, the weights being determined by fading of each received packet. In the paper by David Chase, a maximum-likelihood decoder (Viterbi) "picks the packet with the minimum number of disagreements weighted by the reliability factor" (page 388, paragraph 5). The reliability factor includes, among other factors, the use of applying the power per bit equation ( $E_b/N_0$ ) to weighing packets (see page 389 paragraph 4). Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention, motivated to improve the error correction results under Raleigh Fading, to combine the above teachings in order to have better error correction performance.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P Trimmings whose telephone number is 703-305-0714. The examiner can normally be reached on weekdays, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on 703-305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-746-9746.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-2394.

John P Trimmings





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jpt

*Eugene J. Lamane*  
*for*

Albert DeCady  
Primary Examiner